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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/955,114

09/19/2001

Manabu Nakamura

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513

7590

12/16/2004

WENDEROTH, LIND & PONACK, L.L.P.

2033 K STREET N. W.

SUITE 800

WASHINGTON, DC 20006-1021

EXAMINER

AHN, SAM K

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/955,114

Applicant(s)

NAKAMURA ET AL.

Examiner

Sam K. Ahn

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 09/22/00. It is noted, however, that applicant has not filed a certified copy of the 2000-288829 application as required by 35 U.S.C. 119(b).

Drawings

2. Figures 16-18 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura, USP 5,703,914.

Regarding claims 1 and 3, Nakamura teaches a demodulation method and apparatus that establishes synchronization from a received signal (input to 8 in Fig.2) that contains a synchronization establishment signal (preamble, see 2 in Fig.1) wherein the change in phase periodically alternates between positive and negative, the synchronization establishment apparatus (see Fig.3) comprising, positive/negative timing detection means (28,30,32,34,40 and 38) that detects the timing of changes in the positive/negative polarity of the change in phase of the synchronization establishment signal contained in the received signal (see Fig.8 wherein the waveform starts from 0 and moves to the positive then to negative wherein the signal is also shown in I Q plane in Fig.9, note col.6, lines 50-64), and synchronization establishment means (26) that establishes synchronization from said received signal based on the detected timing (outputting CK as shown in Fig.8).

Regarding claims 2 and 6, Nakamura teaches all subject matter claimed, as applied to claim 1 or 3. Nakamura further teaches synchronization is established from the received signal and is demodulated, as explained above. Although Nakamura does not explicitly teach that the system receives plurality of received signals, it is inherent that the system receives as such, since as described in the specification (note col.2, lines 63-67) that each of the transmission comprises the

preamble, and further it is inherent that communications occur with more than one transmission, and wherein each of the received signals are demodulated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4,5 and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura, USP 5,703,914 in view of Ejzak et al, USP 6,069,883 (Ejzak).

Regarding claims 4 and 5, Nakamura teaches a demodulation method and apparatus that establishes synchronization from a received signal (input to 8 in Fig.2) that contains a synchronization establishment signal (preamble, see 2 in Fig.1) wherein the change in phase periodically alternates between positive and negative, the synchronization establishment apparatus (see Fig.3) comprising, positive/negative timing detection means (28,30,32,34,40 and 38) that detects the timing of changes in the positive/negative polarity of the change in phase of the synchronization establishment signal contained in the received signal (see Fig.8 wherein the waveform starts from 0 and moves to the positive then to negative wherein the signal is also shown in I Q plane in Fig.9, note col.6, lines 50-64), and synchronization establishment means (26) that establishes

synchronization from said received signal based on the detected timing (outputting CK as shown in Fig.8), and demodulation means (18 in Fig.2) that demodulates said received signal according to the established synchronization timing. However, Nakamura does not explicitly teach modem or a base station comprising the elements above and further does not teach, modulating means, antenna, transmission means, receiving means and control means. Ejzak teaches communication between mobile station and a base station transmitting and receiving signals containing preamble for synchronization and further teaches antenna (301,306 in Fig.3) that transmits and receives wireless signals, transmission means (305) that wirelessly transmits modulated signals to the mobile stations via the antenna, receiving means (302) that receives via the antenna signals transmitted wirelessly from the mobile stations, and modulating means (which is inherent, and further shown in a transmitter, see 203 in Fig.2) for modulating the signals to transmit, and communicating between the base station and mobile stations (see Fig.12) wherein the base station is further connected to external apparatus or packet or circuit switched network (1203 in Fig.12) communicated by control means (303 in Fig.3) for communicating the signals exchanged with the mobile station to the external apparatus. Therefore, it would have been obvious to one skilled in the art at the time of the invention to combine Kimura and Ejzak by having Kimura's teaching in the receiver of Ejzak (302 in Fig.3) and thus establish fast synchronization by detecting the preambles in the

received signal, and further communicate the signals between the mobile stations and base station (as taught by Ejzak).

Regarding claims 7 and 8, Nakamura in view of Ejzak teach all subject matter claimed, as applied to claim 4 or 5. Nakamura further teaches synchronization is established from the received signal and is demodulated. Although Nakamura does not explicitly teach that the system receives plurality of received signals, it is inherent that the system receives as such, since as described in the specification (note col.2, lines 63-67) that each of the transmission comprises the preamble, and further it is inherent that communications occur with more than one transmission, and wherein each of the received signals are demodulated.

Regarding claims 9 and 10, Nakamura teaches all subject matter claimed, as applied to claim 1 or 3. Nakamura further teaches wherein a preamble pattern wherein 1001 is repeated in pi/4-shift QPSK is used as the synchronization establishment signal (note col.1, line 9-10 and note col.2, line 63-67). Although Nakamura teaches received signal containing said preamble pattern, Nakamura does not explicitly teach wherein a burst signal containing said preamble pattern is used as the received signal. Ejzak teaches communication between mobile station and a base station transmitting and receiving signals containing preamble for synchronization wherein the received signal is a burst signal (see Fig.4). Therefore, it would have been obvious to one skilled in the art at the time of the

invention to implement Nakamura's signal wherein the received signal is transmitted as the burst signal for the purpose of transmitting and receiving signals wirelessly between two stations.

Regarding claims 11 and 12, Nakamura in view of Ejzak teach all subject matter claimed, as applied to claim 4 or 5. Nakamura further teaches wherein a preamble pattern wherein 1001 is repeated in $\pi/4$ -shift QPSK is used as the synchronization establishment signal (note col.1, line 9-10 and note col.2, line 63-67). Although Nakamura teaches received signal containing said preamble pattern, Nakamura does not explicitly teach wherein a burst signal containing said preamble pattern is used as the received signal. Ejzak teaches communication between mobile station and a base station transmitting and receiving signals containing preamble for synchronization wherein the received signal is a burst signal (see Fig.4). Therefore, it would have been obvious to one skilled in the art at the time of the invention to implement Nakamura's signal wherein the received signal is transmitted as the burst signal for the purpose of transmitting and receiving signals wirelessly between two stations.

Allowable Subject Matter

5. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Present application discloses method and apparatus of synchronizing received signal in a base station wherein the received signal comprises preamble. The receiver in the base station detects the preamble and generates timing signal by analyzing the phase of the received signal. Closest prior art, Nakamura, teaches all subject matter claimed. However, Nakamura does not explicitly teach the configuration of an unwrap circuit, a second adder, polarity bit converter, change point extraction circuit, change point measurement circuit and a clock synchronization establishment circuit as illustrated in Fig.4.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakamura et al. (USP 5,668,838) and Fujimura et al. teach generation of synchronization signal by measuring the phase of the received signal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

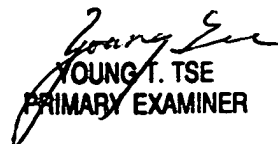
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn
12/7/04


YOUNG T. TSE
PRIMARY EXAMINER